

Ham-station 1918

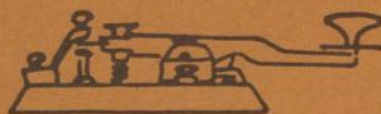


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MORSUM MAGNIFICAT is published quarterly to provide international in-depth coverage of all aspects of Morse telegraphy, from its earliest concept to the present time.

MORSUM MAGNIFICAT is for all Morse enthusiasts, amateur or professional, active or retired. It brings together material, which would otherwise be lost to posterity, providing an invaluable source of interest, reference, and record, relating to the traditions and practice of Morse.

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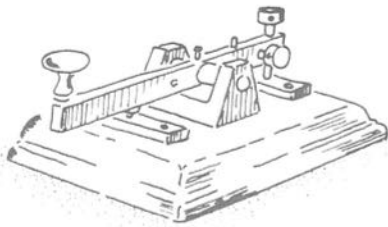
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The story of the key



1



IN ORDER TO identify, date and catalogue the keys of the communications field, it is necessary to research a great many early publications for there is no single reference on the subject.

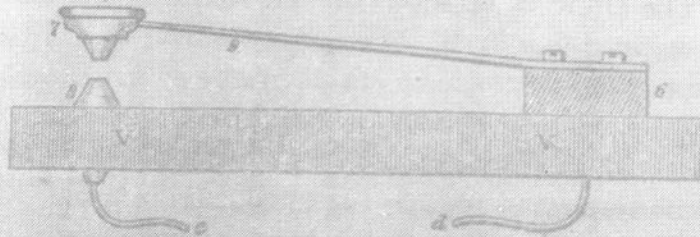
The material here will not include every key for some three hundred patents for keys from 1844 to the present have been issued in this country alone, and that total does not include any military or foreign instruments. Rather, this study illustrates what may be called "milestones" in the evolution of the key that may assist in dating and cataloguing them.

May 1844 was the "birth" of the key. There were, of course, earlier methods of manual transmitting such as the knobs that were used to activate the Needle Telegraphs in Europe; and Samuel Morse had a number of elaborate and cumbersome devices to indicate his binary code. Then, in early May, as Alfred Vail tested the wires only a few weeks before the Baltimore-Washington demonstration, he found that it was possible to create the code by the simple method of opening and closing the circuit "much in the same manner as a key does a door", and built an instrument that very much resembles the strap key of the railroads.

Both he and Morse gave it the same designation that had been chosen for the earlier designs - "Correspondent" (Fig 1).

more distinctly seen in figure 11. The same letters in each, re

FIG. 11.



ne thing. V and V is the platform. S is a metallic anvil, v
end appearing below, to which is soldered the copper wire c.
c hammer, attached to a brass spring, 9, which is secured to a bl
e whole to the platform, V V, by screws. A copper wire

Fig. 1 Correspondent.

The first Correspondent was actually a temporary instrument for the first demonstration and within six months, by November 1844, Vail had perfected the principle over which all keys since then have been based, that he described as "a lever acting upon a fulcrum". (Fig. 2).

As with the first one, all the metal parts were brass including the contacts, and each part was mounted separately on the operating desk, while the spring was merely a strip of metal that supported the lever to hold the contacts apart when not in use.

Vail, following Morse's idea, named this one the "Lever Correspondent".

Also, in those early days, and into the late 1850's, the contacts were referred to

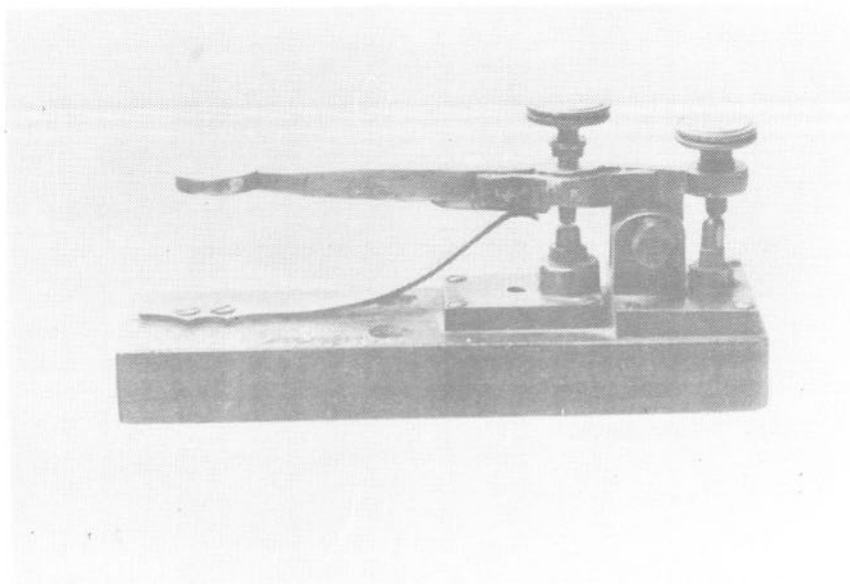


Fig. 2 Lever Correspondent.

as the "hammer" and the "anvil", terms easily understood in those days of the village blacksmith.

The straight lever style was the only type used by the growing profession for the next three years, but by 1848 the need for more easily operated keys was apparent, for the operators did not find the straight lever comfortable.

The curved lever first appeared in the Camel-back design of 1848. (Fig. 3).

Since the spring was not considered to be of any help in operating, the heavy, exaggerated curve shifted the balance so that the weight was to the rear of the lever, causing it to fall back automatically, and the spring remained the same as the Vail key.

Also because there was no provision for a circuit-closing switch, they used a window

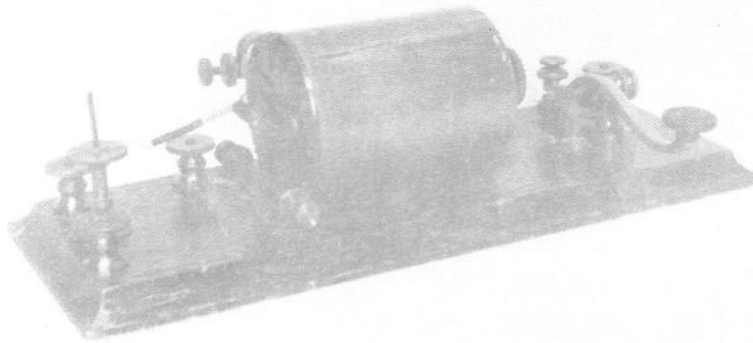


Fig. 3 Camelback.

catch mounted near the key. Remember, it was a brand new industry, and everyone was learning by doing.

At that time there was no commercial production of telegraph equipment and all instruments were made to order by instrument makers. The first Camelbacks were made by Thomas Hall of Boston, Charles Chubbuck of New York, and the Chester Brothers also of New York.

It was not until 1860 that the commercial manufacture of telegraph instruments started with the L.G. Tillotson Company.

In 1850, Thomas Avery, an assistant to Morse, introduced the coil spring. (Fig. 4). Placed to the rear of the lever at first, within a short time it was moved to under the center for better balance, thus obviating the need for the heavy weight at the rear. Also by 1851, the parts of the key were no longer mounted separately but were assembled on a metal frame. Although the Camelbacks were preferred the straight lever continued to be used, for the telegraph companies permitted the operator to work with the key that suited him best. (Fig. 5)

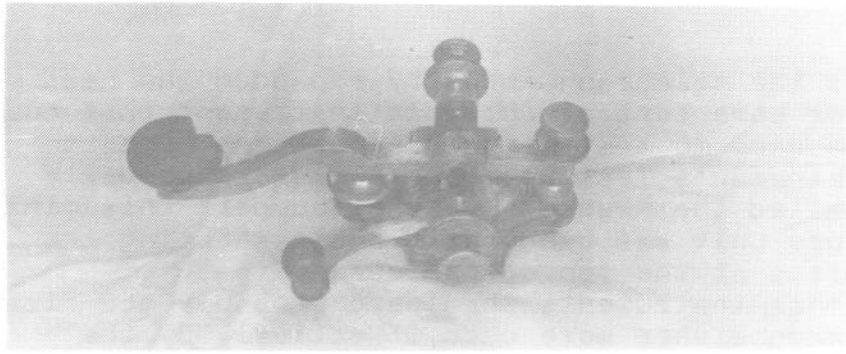


Fig. 4 C oil spring.

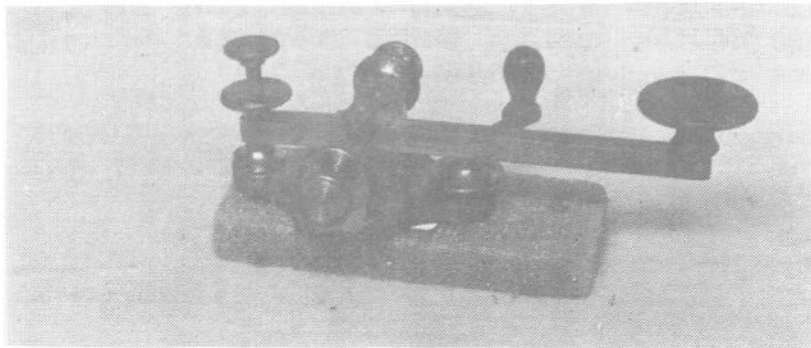


Fig. 5 Henning Straight Lever.

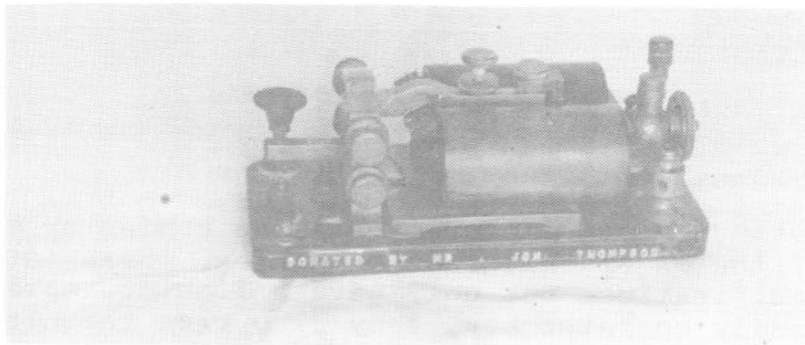


Fig. 6 Pocket key and sounder.

As the telegraph industry expanded the need for some sort of portable instrument that could be used to test wires produced the compact "Lineman's Test Set" in 1859. More properly called the "Pocket Key and Sounder" this miniature unit was used for trouble shooting the wires at the top of the pole (Fig. 6). These instruments that were probably the first transceivers were used effectively by the military of both sides during the Civil War. In 1860 the Camelback was perfected by George M. Phelps of the Western Union Company. Phelps redesigned the key for perfect balance, slimmed the lever, and, recognizing the importance of the spring, added provision for adjustment of spring tension. (Fig 7.)

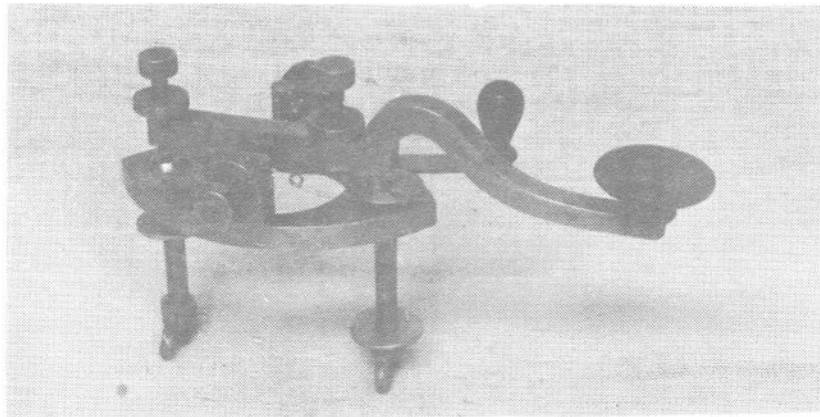


Fig. 7 G.M. Phelps Camelback.

These Phelps' improvements were copied by most of the major telegraph companies. These 1860 modifications not only gave a lighter, more easily operated key, they also made the high curve of the Camelback style unnecessary, and the lever began to smooth down in 1874 with the C. W. Lewis keys of Western Electric Company. (Fig. 8).

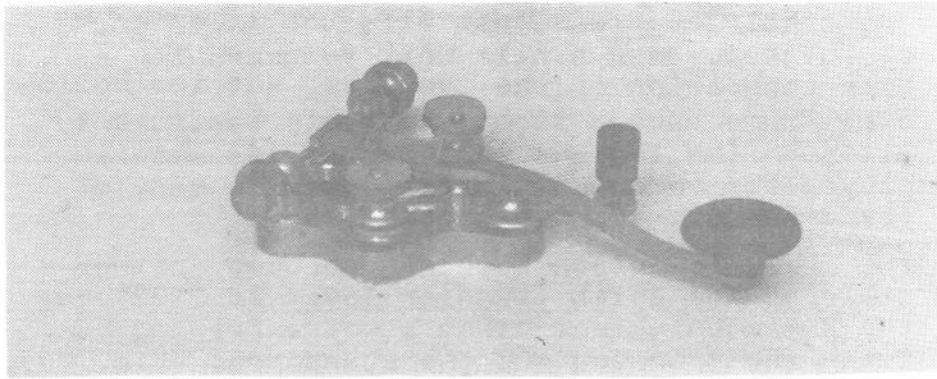


Fig. 8 C.W. Lewis-key.

Despite their excellence, the Camelback and the Lewis keys had a grave drawback and that "fulcrum" was the problem. Made of steel, it was inserted through the brass lever and the steel eventually caused the softer red brass to wear so that the lever slipped off center, causing poor sending (and usually plenty of profanity on the part of the operator). The needed changes appeared in February 1881 when James H. Bunnell received a patent for the "Steel Lever Key" (Fig. 9) that was accepted by all the telegraph companies and railroads.

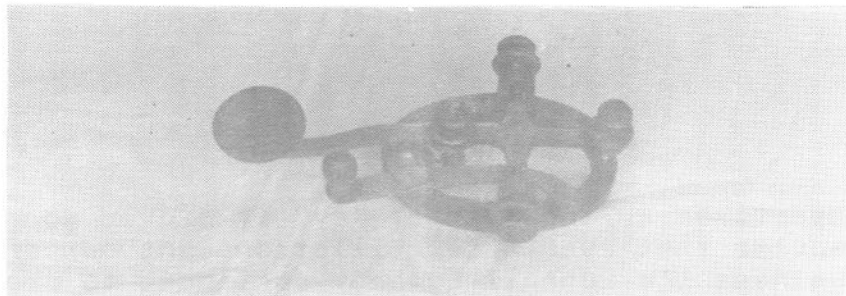


Fig. 9 Steel Lever key.

The steel lever was cast with the trunnion, or fulcrum, as a single unit to guarantee a firm connection of the contacts, and the hollow oval frame gave a light, portable instrument, although the leg and semi-leg styles were employed for permanent installation in many of the offices.

The L.G. Tillotson Company produced another style of the solid trunnion lever in 1882 over the Hamilton patent using a knife-fitting between the trunnion and the standards. (Fig. 10).

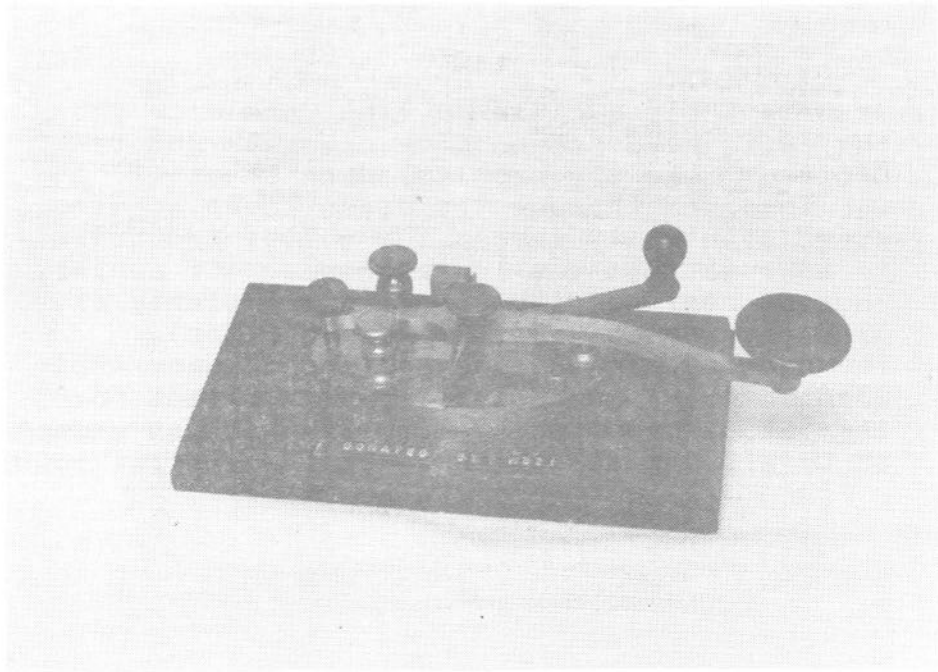


Fig. 10 "Victor Key".

Advertised as the "Victor Key" it proved so popular that even after Tillotson went out of business the Bunnell Company continued to produce it as late as 1918 under that name.

The spring also went through several changes after 1844. There was, of course, Avery's coil

spring that has never changed; but there was also a single wire bent in a shape that may well be called a "safety pin" spring because of its appearance. (Fig. 11).

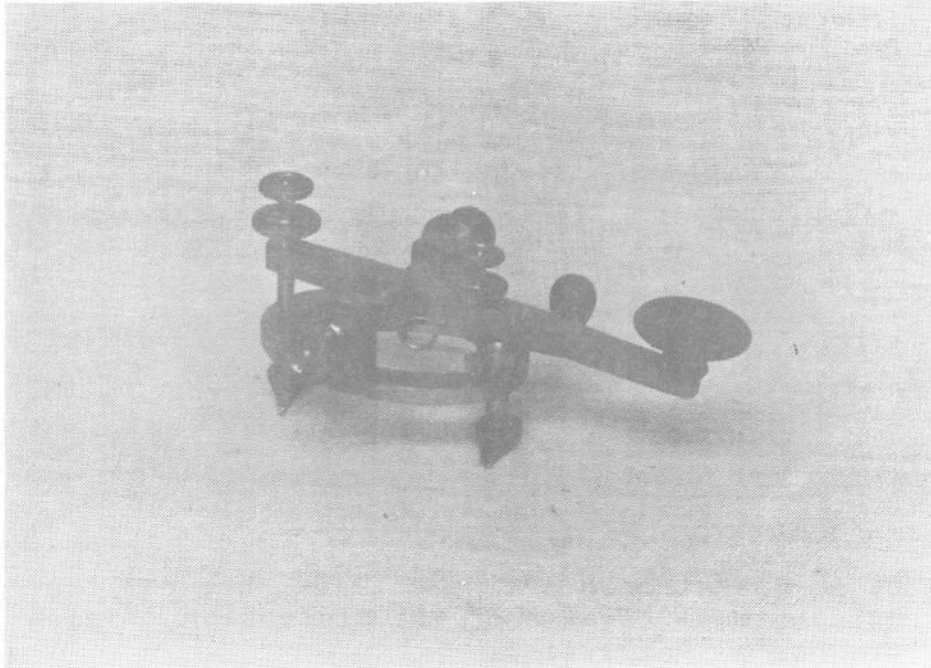


Fig. 11 "Facer Key".

So far as can be found, it was introduced in various patents of the late 1850's and early 1860's.

The Camelbacks remained in use after 1881 since some operators preferred them. Also, many were produced without spring tension adjustment in the practice, or learner's K O B (Key on Base) sets. (Fig. 12).

However, the Steel Lever proved to be the best style for the huge amounts of copy that was being handled on all wires and has remained as the standard telegraph key.

These huge amount of material, that ran from ten to eighteen thousand words that were handled

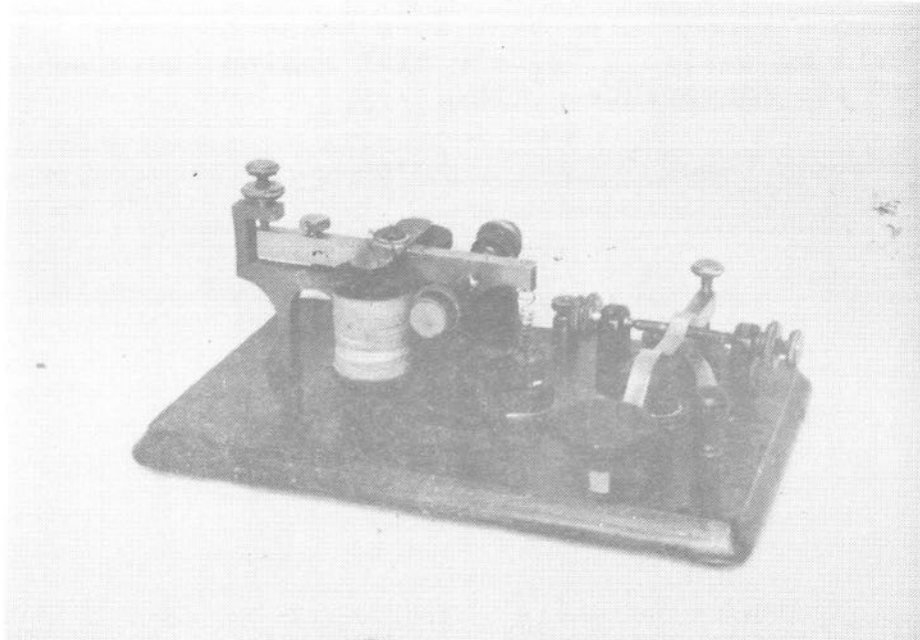


Fig. 12 "Key on Base".

by an operator in a single trick, brought the occupational disease of the profession, "Telegrapher's Paralysis".

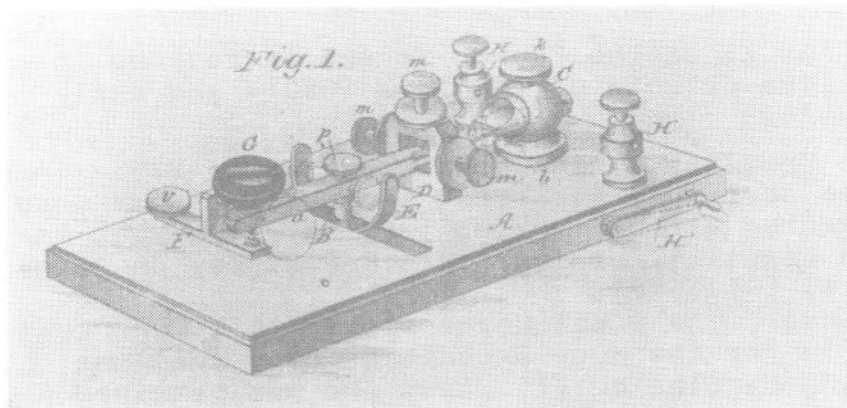


Fig. 13 Convertible Telegraph key.

This hazard, caused by the vertical action of the handkey, could, and often did, cause permanent disability. Since the telegraphers themselves had been responsible for most of the changes for the better in the instrument, again they came up with ideas to alleviate, if not prevent, this problem. (Fig. 13). The earliest known is the "Convertible Telegraph Key" of J.A. Maloney and A.G. Johnson in 1886. It was a straight lever that could be operated vertically or turned to either side for horizontal operation as either a left- or a right-hand key.

Two years later the horizontal principle was perfected and advertised in 1888 as the "Double Speed Key" by the Bunnell Company (Fig. 14).

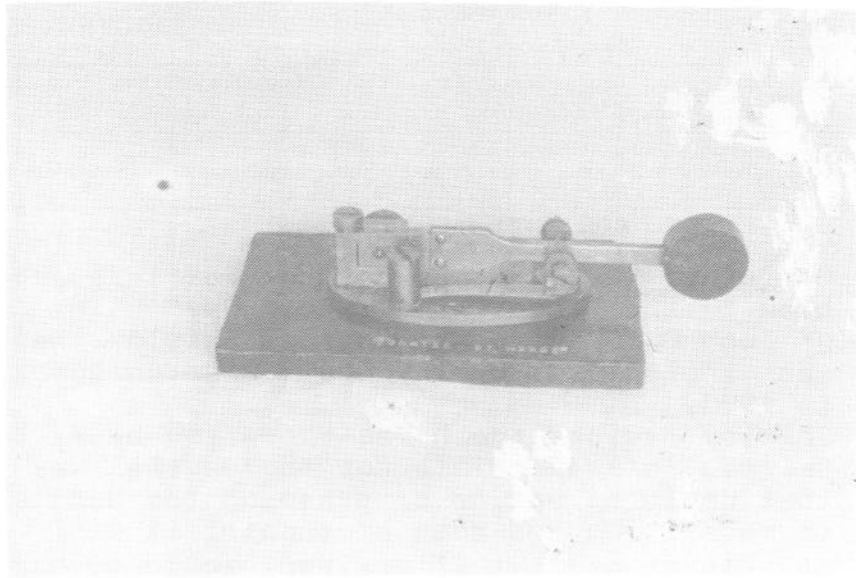


Fig. 14 "Double speed" key.

More popular known as a "side swiper" because it was manipulated from side to side to create the code, that term became a generic one for any key that used horizontal operation and has never been the copyright of any manufacturer. This key was still being produced by Bunnell for the telegraph in 1920, and was later used for radio after CW replaced spark.

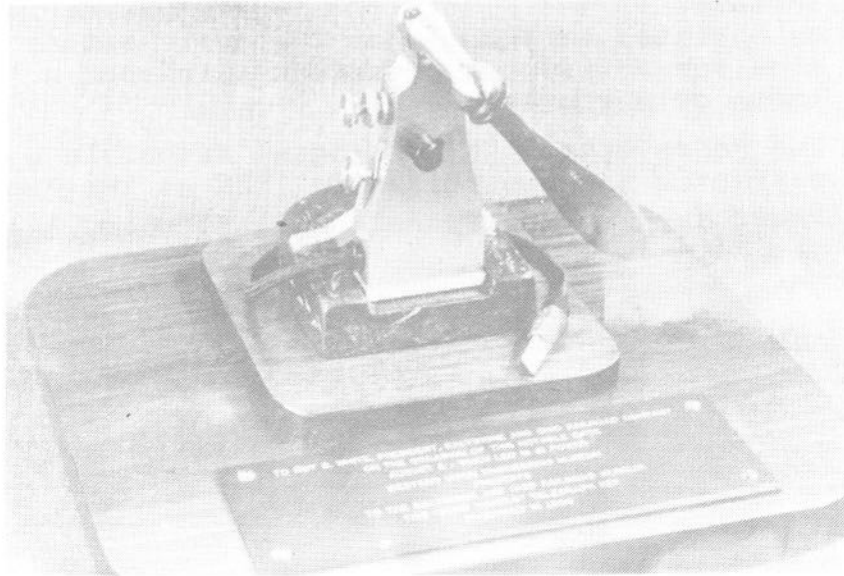


Fig. 15 "Twentieth Century" key.

One other key that was devised for this problem is the "Twentieth Century Key" (Fig. 15) of John F. Skirrow and Charles Shirley that was manufactured by the Foote-Pierson Company in 1900.

Shirley devised the horse-shoe-type base, but Skirrow is responsible for the unusual key that could be worked by grasping the handle to move it up and down or tapping it with any finger or fist if desired, again to help the victims of that "glass arm".

As might be expected, the profession promptly nicknamed it the "Pump Handle Key".

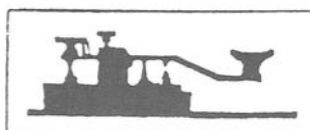
In the story of the Key, several names are outstanding: Alfred Vail gave us the lever principle; Thomas Avery for the coil spring; George M. Phelps who saw the advantages of adjusting that spring's tension; and, of course, J.H. Bunnell who took the ideas of these men, added a few of his own, to produce the Steel Lever instrument that has never been surpassed as a hand key.



*L04
99.99 % CW*

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Spark-gap 19 "X"





I was interested in the article by C.C. Halliday (Middle East Memories - MM Nr 2). My service in the RAF was from 1939 to 1946, and in 1940-41 I was a wireless operator, in Aden, using the "X" code.

It was a much more comprehensive code than the Q-code which was used later. A few years ago I could have remembered some of them, but now they have all gone. No doubt someone will have a copy of the book, although at that time it was, of course, classified.

I can remember an amusing use of one of the codes. When on a point-to-point circuit one was in contact with a particularly dithery operator, he would send: X...? The said operator would look in his book and would find it meant "Are you flying in a storm?"

73, Bob Newland, G3VW.



Give those UAs a bit of their own back

by Gus Taylor, G8PG.

The basic purpose of the amateur licence is self-training in the art of radio communication. Our CW abbreviations make communication between people speaking a multitude of different languages possible, but any QSO becomes more meaningful if one can give the chap at the other end even a few words of his native language. This somehow personalises the QSO, and in my experience it also greatly increases the likelihood of a QSL arriving. Anyone who works on the h.f. bands is inevitably going to contact a number of UA stations, a group who rarely hear the Russian language unless they are working among themselves. Judging by my own experience they are really thrilled when a ham from another country gives them a few words in their own language, particularly on the key.

The Russian language is based on a 32 letter alphabet originated specially for the purpose by Brother Cyril, a Byzantine monk, and only slightly altered in the intervening centuries. This alphabet consists of Greek, Latin, and Hebrew letters, and sending it in Morse involves the use of the normal alphabet plus accented letters. (Quite fun at 25 wpm when you are trying to remember the Russian spelling, and the Russian grammar, and which Morse characters represent the Cyrillic letters you want!). Fortunately for simple information it is not necessary to use accented letters. In passing, note that UA ops are well versed in all our normal CW abbreviations, these being contained in the Russian equivalent of the ARRL Handbook. We can thus intersperse these abbreviations with a few suitable Russian words transliterated into Morse code, and so pay our contact the compliment of addressing him in his own language.

Hello and Goodbye

The normal Russian greeting is a word roughly pronounced "Zdrasti", and equally roughly translated as "Hello, how are you?" This of course becomes the ZDR that we have all heard on the bands.

The "TOW" often heard after ZDR is an abbreviation for "Tovarich" which in this context means "OM". The often heard "DSW" means "goodbye".

Thanks

If you want to say this in Russian just send "SPASIBO". There is a more formal and polite form, but unless you are a Russian student you will not be able to remember it, and SPASIBO is quite adequate.

The weather

The Russian word for weather is "PAGODA", but WX is quicker and the UAs themselves use it. As one may wish to combine weather states - for example, "raining and cold" - remember that AND in Russian is simply the letter I sent on its own.

Likely weather states can be sent as follows:-

Rain; DOVDX IDET ("The rain he goes")
Snow; SNEG IDET ("The snow he goes")
Sunshine; SOLNCE SWETIT
Hot; VARKIJ. Cold; HOLODNO. Fog; TUMAN.
Frost; MOROZ. A Little; NEMNOVKO. Much; MNOGO.

Radio terms

There is no "h" in the alphabet and it is replaced by "g". KHz and MHz thus become KGz and MGz. Watts are WATTY. Other common terms such as TX, RX etc are used as in English.

The famous WSEM still sometimes heard during the UA-only contests simply means "all". It indicates that only QSOs with other Russian stations are wanted. Radio is the same in both languages, and amateur radio is RADIOSPORT. (You can become a Master of Sport of the SSSR if you are good enough at ham radio!). From that remark, one can see that USSR becomes SSSR in Russian.

QSLs

PSE QSL is all that you need when asking for one.
QSL BUDET WAM BURO will let the other chap know that you
are definitely going to send him a card.

Other terms

"Yes" is DA, "no" is NET, "not" is NE, "but" is NO and
"glad" is RAD. When saying "thanks for the QSO" send
SPASIBO ZA QSO.

Example of use

First over (he has called you). UA1--- de G3---
= ZDR I SPASIBO ZA QSO = UR RST 589 = QTH Heckmondwyke =
Name Cuthbert = HW? UA1--- de G3--- K.

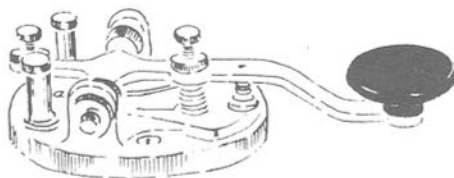
Second over. UA1--- de G3--- = R SPASIBO TOW ALEX =
HR TX 2 WATTY I antenna dipole = WX DOVDX IDET I HOLODNO =
QSL BUDET WAM BURO = HW? UA1--- de G3--- K.

Third over. UA1--- de G3--- = R SPASIBO ALEX UR SIGS
VY FB = RAD QSO I HPE CU SN 73 I SPASIBO ALEX DSW =
UA1--- de G3--- SK

Conclusion

More able Russian scholars may be able to pick holes
in the above, but at least it has been understood by many
UAs and very often their comment has been "Thanks for the
QSO and the Russian". If you want to do the same thing
on phone be prepared for several years of hard but inter-
esting part-time study! CW is much easier because accent
and pronunciation do not enter into it. Now what about
some of our experts in other European languages giving
us a few useful phrases for use in CW QSOs?

(Originally published in the 15th issue of the G-QRP
Club's journal SPRAT.)





"Someone is always listening"

By Ken Randall.



In 1962, I was in charge of Communications on board HMS Protector, the Navy's Ice Patrol ship in the Falklands and the British Antarctic, working in conjunction with the British Antarctic Survey bases and two research vessels, "John Biscoe" and "Shackleton".

One day ashore in Port Stanley, I met up with the Radio Officer of the John Biscoe, an Irishman known as Paddy, and over a drink or two we discussed inter-ship communication schedules (skeds) of which there were a considerable number each day while away from Stanley.

In those days, such skeds were 99% in Morse. Paddy suggested that if ever we needed him in a hurry and couldn't wait for the next sked, we should use the auto alarm signal on 500kcs (the International Distress frequency), as there were never any signals heard on 500 during the day due to the lack of shore stations and ships in our large area. I was a bit apprehensive about using that frequency, except for its intended purpose, but said "OK" in the hopeful knowledge that the need would never arise.

A few weeks later, we were off South Georgia when an urgent need arose to get in touch with John Biscoe, which was further south. There was about 2 hours to the next sked but the Captain couldn't wait that long. To send a message through Stanley would probably not be any quicker than waiting for the sked. So.....

I tuned up on 500kcs and listened for about 10 minutes. There was not the slightest sign of any signals at all. So, with much apprehension I very carefully sent the auto alarm signal (a certain sequence of the letter 'T' in Morse), followed by the Protector's callsign.

I listened for about 15 minutes, but there was no reply. I thought, "I'm not going through all that again, just in case". The Captain would just have to wait!



Came our next sked with Stanley, and as soon as we had established communications, Stanley came straight back to us and asked "were we OK?" "Of course", I replied, "Why?"

"Had a report from Shackleton that the auto alarm sounded off, followed by your callsign, and nothing further".

"Crumbs", I thought (or words to that effect). This would cause a row - I had to report it with as much flannel as I could put round it, I got a severe telling-off, and that was that.

Next time I met up with Paddy I told him in no uncertain words what I thought of his idea! Strange that I hadn't heard Shackleton trying to call us, and that John Biscoe (which was much closer to us than Shackleton) hadn't heard me.

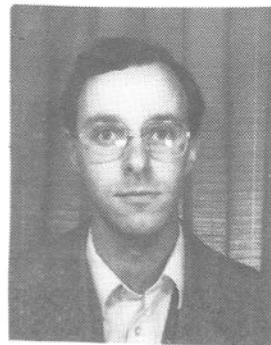
It just goes to show, though, that "someone is always listening" !





Meet Dr.DX!

by Steve Muster, G4UOL.



Dr DX is a Morse code contest trainer that brings you the excitement of the DX chase without actually being on the air. You can place yourself anywhere in the world, at any time of day you wish, and experience amateur radio operating conditions as they would be felt at that time and place.

When the program is first started you need to (a) set the clock for the time of day you want, and (b) select the longitude and latitude for your location. Once you are operating you can change bands, frequency and power. If Dr DX decides that the band you selected is normally open at the time you selected, you will hear computer generated CW signals spread across the band. The stations you hear will be working one another or calling CQ. The radio propagation for each band represents what you would actually expect to hear on a good day with an omni-directional antenna.

The call letters of the stations you hear are totally random but weighted according to population density, with the guarantee that for each of the 304 countries which exist there is at least one station. The speed of the stations operating in the lower parts of the bands is much faster than those in the upper parts of the same bands.

The typical two-way contest exchange involves call-signs, signal reports and CQ Worldwide zones. Should you miss any part of a QSO, you can ask for and receive a repeat. Should you make a mistake, the other station might ask you to repeat something. You can even ask the other station to QRS or QRQ, and he will. The program

shows your score and QSO rate continuously. You can set a time limit on the contest if you wish, so that you can track your performance on each session.

Dr DX is good, clean, competitive fun, and is ideal for settling those Club rivalries by competing against your friends under identical conditions.

The previous paragraphs on Dr DX were taken from the AEA Manual which comes with the cartridge. Once the program is set up and running, notice what the stations are saying to one another. The contest exchange is RST + CQWW zone, usually run together. For example, if you are in England you might send 59914, 14 being the zone for England. Some of the numbers can be abbreviated in the interest of faster exchanges; ie, T for 0, A for 1, N for 9.

Basically there are two ways to enter the contest. "Hunt and Pounce" is where you wait for a station to call CQ, and you answer him. "Call CQ Forever" is where you stake-out a frequency and call CQ yourself.

As soon as Dr DX knows your sending call-sign, it is posted onto the bottom of the screen. Your call-sign must agree with one which would normally be found at your chosen latitude and longitude, otherwise you will not score any points.

During the contest the following keys are used on the computer - B, to change band; F1, F3, F5, F7, to change frequency; P to set power (2/20/200 watts); V for side-tone volume; X (0 to 9) for bandpass filter; C for colour of screen display; and the Run/Stop key. The only snag I have found when giving demonstrations of the program is that Dr DX likes to be sent perfectly spaced CW, so it is almost impossible to use a straight key successfully. Finally a note on operating technique. You need not send all of the call-sign of stations contacted. For example, if you work VK2ABC, you need only send VK2 or ABC, plus the report.

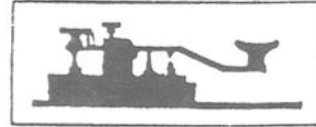
My highest score to date was with the call-sign 7Q7MI (Malawi) in CQ zone 37. I also had the highest QSO rate, at 232 QSOs per hour. Pretty hot stuff! The odd hour spent in a different part of the world is great fun, and is excellent for improving one's CW sending and receiving.

(From "Bandspread", magazine of the Southgate Amateur Radio Club.)

Note: Dr DX is a computer program for the Commodore 64 or 128. A program module plugs into the game-port of the computer, and a Morse sending key (preferably electronic) plugs into the module.



Spark-gap 20



THE CASE OF THE MISSING DASHES.

Have you ever heard of non-Morse telegraphy which has no dashes ? U.S. prisoners of war used it in Viet Nam; voice communication had severe penalties.

It is impossible to send Morse code dashes by clicking two rocks together for using shoe taps, tapping on lunch tray tops, etc) so someone invented a dash-less code. Here it is:

A ..	B . ..	CK	D	E
F	G	H	I	J
L	M	N	O	P
Q	R	S	T	U
V	W	X	Y	Z

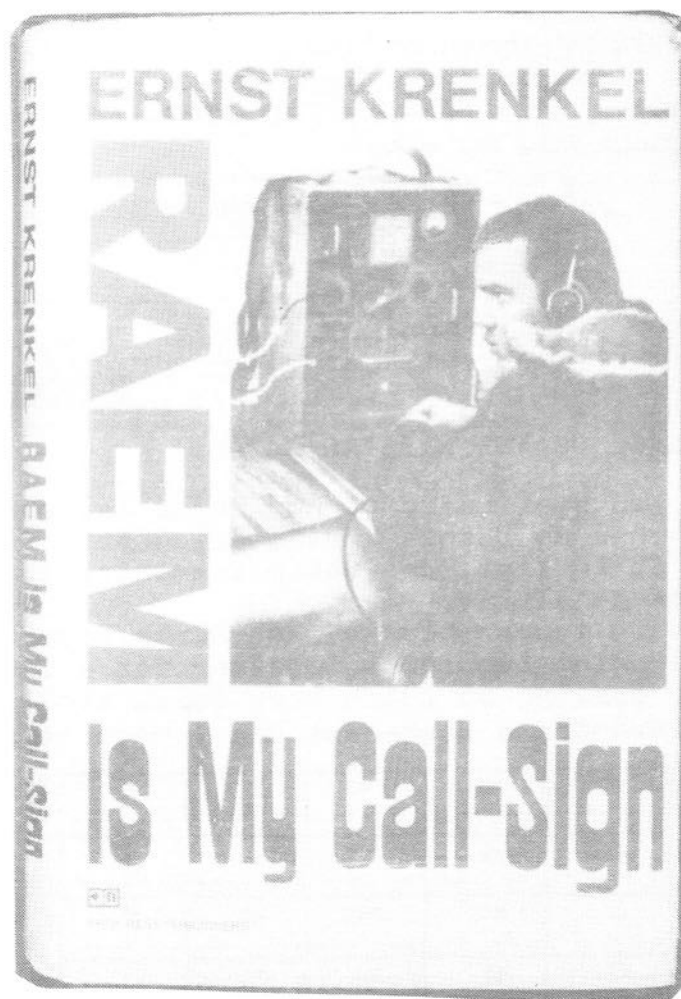
For further information, read "Love and War" by Adm. James and Mrs. Sybil Stockdale.

I wonder what it would sound like on a bug ? 73.

Bill Marshall

Dots & Dashes





Before his death in 1971, Ernst Krenkel was the best-known radio amateur in the USSR. He was radio operator on the SS Chelyuskin which sank off the northern coast of Siberia in 1934. His radio was the only link with the outside world, and for his untiring work towards the rescue of the crew and passengers, during two months on the ice, he was allowed to retain the call-sign of the Chelyuskin, RAEM, as his personal amateur radio call.

His autobiography was published in Russian in 1973, and an English language version in 1978. He was a school-

boy at the time of the revolution, and the book provides a rare glimpse of family life in those troubled times. The young Ernst's reaction to political events was to decide that revolution meant freedom and that school attendance was, therefore, no longer compulsory!

He was successively a pedlar, an assistant electrician, and an assistant mechanic, repairing stoves, saucepans, perambulators, and whatever else was brought to him in a tiny back-street workshop in Moscow.

Extra rations!

In 1921, he saw an advertisement for radio-telegraphy training, including a promise of extra rations which played no small part in persuading him to apply! It was a cold winter. The students wore their street clothes in class, with headphones perched on top of their fur hats. The instructor sat at his Morse key, wearing similar headgear. He was one of the few radio operators to have wintered in the Arctic at that time, and his stories, told to the class, gave Krenkel his first interest in that part of the world where he was to spend so much of his life.

After a year he came top of his class. He could read Morse at 150 letters a minute, and was posted to a receiving station where his job was to take down bulletins from newspapers round the world. On his first day, he had great difficulty in reading Morse "on-the-air", having only previously experienced loud, clear, and undistorted signals in a classroom situation. He was dismissed for incompetence on the spot! He was soon re-instated however, to master the vagaries of radio reception, and to study radio technology, such as it was in those times.

"He knows his job"

In 1924, he decided he wanted to go to sea. A friend gave him a note of introduction to a ship's engineer in Leningrad, "Pete! Help this fellow. He's a good chap and knows his job". It wasn't as easy as that though, and he was unable to find work until an expedition was set up to relieve a party wintering in the Arctic, and he was appointed its radio operator.

The party to be relieved was the first ever to winter on the island of Novaya Zemlya, and there was a general

reluctance by other radio ops to follow in the footsteps of the pioneers. Glad of any job at the time, Krenkel unknowingly took the first steps towards a career which was to make him famous.

When he returned home he was called up for a year's military service. He was in a radio-telegraphy battalion, and operated an "improved" spark transmitter, the ALM. Power was provided by a "soldier motor", a tandem bicycle arrangement, pedalled furiously by two soldiers to turn a dynamo. The range of the ALM was officially 75 Km, but considerably less as the tandem party tired! There were five men to each crew. Two pedallers, two operators, and a commander. In later years Krenkel loved to remember the command given them on parade, "First radio station at a distance of one station from the next, quick march!"

Wind-generator
used to power
Krenkel's radio at
the North Pole.





Krenkel conferring an honorary diploma upon Yuri Gagarin for establishing the first VHF link between Earth and space.

Amateur radio

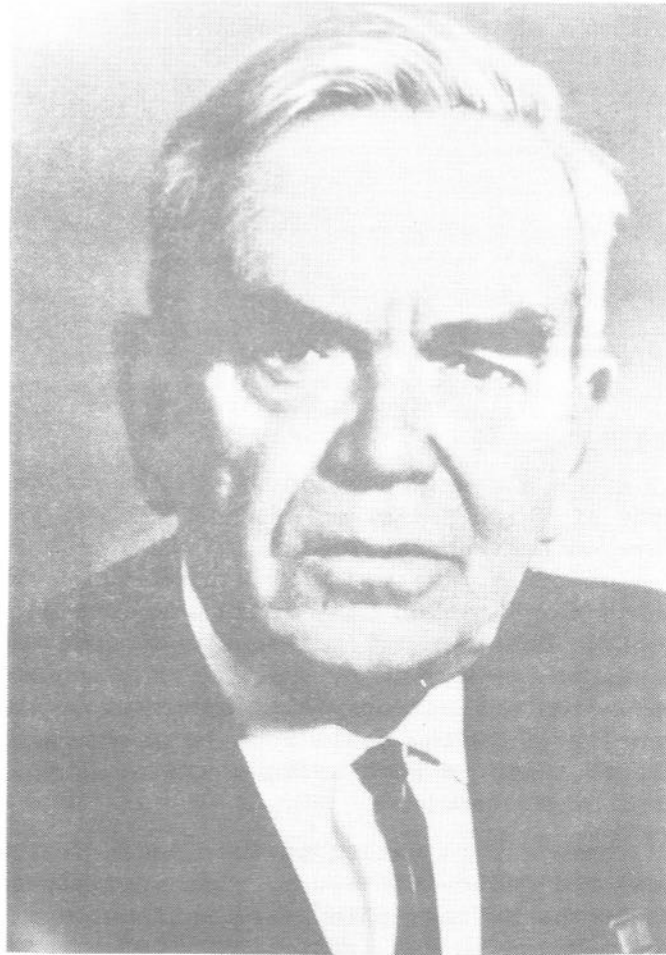
After his army service he took a variety of jobs, none of which satisfied him and, at the same time, discovered amateur radio. As in other countries, there was a glut of surplus military equipment in the USSR after world war I, which many radio amateurs acquired for their hobby. Home-constructed equipment, for 200 metres and down, followed, and by the end of 1926 Krenkel had his own call-sign and was operating a home-made transmitter and receiver from the small room he shared with his mother in Moscow, using a wire antenna strung up to, and over, the roof above them.

That year he called at the Moscow office of the Nizhny Novgorod radio laboratory, with a highly embellished story about the hydrographic board wanting to experiment with short-waves in the Arctic. The laboratory was already making experimental radio contacts with Tashkent and Vladivostok. They jumped at this new opportunity, and made a 300 watt transmitter and receiver available to Krenkel free of charge, apart from the hand-made valves, for which they charged 60 rubles each.

welcomed

Krenkel rushed to Leningrad where that year's relief party for Novaya Zemlya was being recruited and, as before, was welcomed as their radio operator. He then broached the subject of an experimental short-wave station which,

Ernst Krenkel
in later years



fortunately, was warmly received. He was soon on his way back to the radio laboratory, this time in an official capacity, to finalise the details and collect the new radio.

He describes the equipment available to him for this second expedition. The "official" radio was a 5 Kw spark transmitter, housed in a small two-room hut, having a range of 300/400 Km. To begin transmitting the operator signalled the mechanic in the next room to start the motor with compressed air. If this failed, members of the expedition were called in to turn the motor's big flywheel by hand until, as Krenkel puts it, "The thumping motor, which made the whole building vibrate, the whining commutator, and the huge masts, combined with a crackling roar to broadcast the signals of Matochkin Shar polar station".

By contrast, the new short-wave equipment he had brought with him was positively elegant, requiring only a fraction of the power, working from batteries, and offering a substantially increased range, as yet undefined.

Unregistered station

He hastened to put it to use, looking for fellow radio amateurs in the first instance. No-one in the Arctic had listened on the short-waves. No-one had transmitted on them before. The experimental station was unregistered, and had no official call-sign. Krenkel adopted the call PGO, meaning "Polar Geophysical Observatory, and went on the air.

After several calls, he heard a weak reply. The excitement was intense, but he could only copy half the call-sign of the other station. Calling again and again, he finally lost even that fragile contact. He cabled an amateur radio magazine, via the "official" radio, explaining what had happened and, after various enquiries, they established that the amateur station calling him was in Baku, nearly 3,500 Km to the south.

Soon, PGO was in contact with amateur stations throughout Europe, and details of each contact were carefully recorded for the Nizhny Novgorod laboratory. Six months later the operators Dikson Island built a 10 watt short-wave transmitter. They asked amateur stations to listen

for their signals, and two-way communication between the two Arctic stations became commonplace.

The expedition's headquarters in Archangel built a further transmitter, and now all signal traffic from Matochkin Shar went directly there by short-waves, bypassing the intermediate station which had previously relayed all messages from the old spark transmitter.

Improvements

The speeding up of traffic, plus significant savings in fuel, were immediate results, but Krenkel's participation in these early experiments led to the increased and effective use of short-waves for Arctic communication generally.

1929 found him in an expedition to Franz Josef Land, where he operated the, then, most northerly station in the world. On January 12th, 1930, his official day's work finished, he put out a call on the 40 metres amateur band, "CQ CQ de RPX". At the other end of the globe, station WFA, serving Admiral Byrd's American Antarctic expedition, heard his call and responded. From the Arctic night to the Antarctic summer, their signals set up a world record for radio communication while they exchanged details of each other's expedition and arranged to meet again the next day.

Zeppelin

He was now well launched on his chosen career, and one expedition followed another. In 1931, he was one of four men representing the USSR in the international team aboard the German dirigible LZ-127, the Graf Zeppelin, which explored, mapped, and took scientific observations in the Soviet Arctic.

In 1932, the second International Polar Year, he was radio operator aboard the Sibiryakov, a vessel attempting to pass through the Northern Sea Route in a single navigational season, something never achieved before. The expedition became trapped in the ice, and blasted their way through with explosives. The ship's propeller blades were smashed, and were renewed by engineers working in the icy water. When just 100 miles of the voyage remained, the entire propeller hub was lost. They completed the Northern Route drifting ice-bound in an easterly current, finally erecting vast black sails to take them to the northern entrance of the Bering Strait on October 1st, 1932.

Round two continents

Radio contact had been maintained continually, both with Moscow and with a trawler which had been despatched to their rescue, and this ship finally towed the Sibiryakov through the Pacific to Japan for repairs. The expedition returned home via the southern route to Murmansk, becoming only the second ship to ever sail all the way round the continents of Europe and Asia.

Krenkel seemed destined for a life of danger and adventure. In 1934, he sat at his transmitter in a small tent on the ice, and keyed, "February 13, 15.30 hours, 155 miles from North Cape and 144 miles from Cape Wellen the Chelyuskin sank, crushed by the pressure of the ice..." The plight of the survivors and their subsequent rescue by Soviet aircraft made world headlines, and Krenkel gives a fascinating account of the day-to-day life of the expedition from the time it began to the triumphant parade of rescuers and rescued in Red Square, Moscow, on June 10th, 1934.

During the years that followed, every February 13th, Krenkel, the men and women of the Chelyuskin, and the airmen who saved them, met together to remember their common experiences although, as Krenkel records, "Few of us now remain as illness, old age and war have taken their toll".

North Pole

Other Arctic expeditions followed, with radio playing an ever more important part, maintaining communications, relaying scientific information as it was acquired, and assisting with the safety of those placed in danger. Krenkel took part in several other adventures which attracted the attention of the world's press, but perhaps the most famous was the North Pole expedition of 1937/38. He was radio-operator in a four man team, air-lifted to the Pole, which drifted southwards on an ice-floe for nine months taking scientific observations on the way. In his "spare" time, and using the call-sign UPOL, he worked radio amateurs round the world, some of whom, towards the end of the expedition, relayed messages for him to the base station on Rudolph Island.

His book ends with an account of this latter exped-

ition, and a half promise to write about the years that followed. He died on December 8th, 1971, and, presumably, he never continued his compelling story.

He is certainly well remembered in his homeland. A commemorative postage stamp was issued in 1973, and many Soviet amateurs use a QSL card which depicts some of his achievements. A bay on the coast of Komsomelets Island is named after him, as is one of the islands in Severnaya Zemlya; the polar hydrometeorological observatory on Hays Island; the Central Radio Club of the USSR; a communications electro-technical college in Leningrad; and a weather research vessel.



The 4 kopek commemorative stamp issued in 1973.

His book is compelling reading for any radio amateur, and is of no small interest to the general reader, suffering little in translation. There can be few copies available nowadays however, hence this extended review.

RAEM was active for many years, and his distinctive and unusual QSL card is a treasured possession of those who received it. Morsum Magnificat would welcome receiving reminiscences about contacts with RAEM, or any other information about this well-liked and distinguished radio amateur.

REVIEWER'S NOTE - How this book came into my possession is almost a story in its own right. In 1978, I received a report from a UAØ SWL on a CW QSO I had with a UK1 station. The QSL was the RAEM commemorative card, which I had not seen before. I was fascinated by it and after much research, including correspondence with the Krenkel Central Radio Club of the USSR, wrote an article, "RAEM calling", which appeared in Practical Wireless in January 1983.

I sent a copy to Moscow, and was later asked by the Soviet amateur radio magazine "RADIO" to write a further article on how I became interested in, and researched material on, matters which occurred so long ago, so far away, and in a language I did not speak. This duly appeared in December 1983, translated into Russian, and shortly after I received a mysterious parcel covered with Russian stamps.

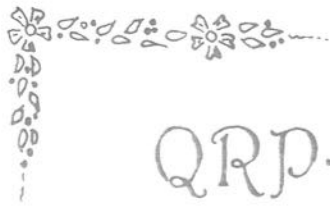
Another SWL, this time a UA9, had read my article in "RADIO". He found an English language version of "RAEM is my call-sign" in a local second-hand bookshop, bought it, and asked the magazine to send it on to me.

To say I was surprised and delighted would be an understatement! After reading the accounts of others here, at last, was RAEM's story in his own words. It fills in many of the blanks from my earlier research, brings him to life for me, and is a fine book in its own right. It now has an honoured place in my book collection.

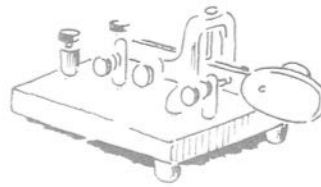
In the same issue of "RADIO", there is a further article on RAEM which appears to include extracts from contemporary magazine reports of the 1930's. If any reader can offer help with a translation, please contact me!

G4FAI.

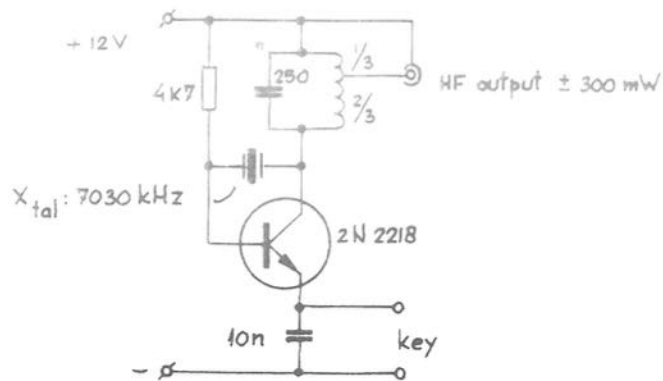




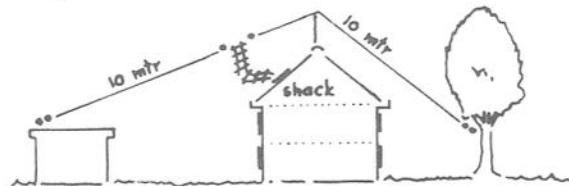
QRP-TX



I have recently been working, on occasion, with the following:



Best DX so far is 510 km. For receiving I'm still using my base-station Icom 720, but I'm going to build a small simple DC receiver. The antenna used is 2 x 10 metres with open feeder.



Ton, PA3AUK.





My best CW..... at one word a minute!

by Chris Lovell, G3JUW.



In the 1970's I was a freelance marine radio operator, specialising in delivery work. This usually meant joining a decrepit vessel and delivering it to new owners somewhere in the world and then immediately flying back.

This type of work suited my restless nature because not only were there different ships and different destinations but there was a great variety of equipment too. This was often very old, with no instructions and no tools or reference books..... which made it hard to operate if the knobs were covered in non-European writing! Frequently there were faults on the equipment or the aerials. Often the call-sign was given by special dispensation only minutes before we sailed, and might be that of the country to which the ship was being delivered, or a flag-of-convenience country. Advantages were that there were no accounts to keep, and very elastic working hours!

Organising the delivery of one of these ships is a terrible job because not only do the crew have to be found, but every single item of equipment, from cups to engine spares and food. Sometimes the vessels have been laid up for long periods and nothing functions first time. Invariably the ships are unladen, with the screw half out of the water, and quite frequently they are flat-bottomed as well. Such was the case of one memorable voyage when I signed on as the radio operator of a Tank Landing Ship to be delivered from South Shields to Halifax, Nova Scotia, where she was to be used as a supply ship to an oil rig on Sable Island.

There is quite a long story concerning the week I spent on board before we even left England, but this is

not the place for recounting all that. Suffice to say there was a pub right outside the dock gate where we were being refitted, and we went through three crews in two weeks.... all carted away insensible!

We had good weather until we reached the Atlantic, and then we had gales day after day - in fact I soon became known as "Mr Gale Force 8" instead of "Sparks". We could only manage about five knots and the ship would rise up and then crash down on her flat bottom, trapping air underneath, vibrating the whole vessel. When this happened I was unable to write for two minutes until she rose up again.

With this pounding, the foremast soon fell off and the bow doors started to open up. Furthermore, a split started to develop amidships because an enormous hatchway had been cut in the shoe-box-like vessel. The loss of the foremast meant that the far end of my main aerial had to be supported by an oar lashed to the railings..... On a delivery vessel there are no spare pieces of wood.

There was a change at last from gales, but not for the better; ice had come particularly far South that year, we were told, and there were 400 icebergs, and dense fog, in our path... and hurricane Agnes was proceeding up the East coast of the States and should coincide with our arrival. There was also an S.O.S. in operation in our area for a fishing vessel reputed to be on fire.

As my ship only had M.F. equipment, I had not been able to communicate with either Europe or America for several days; the last message I had sent detailed all the things that had gone wrong so far, and then silence from us. Now a split developed in our mainmast which carried the radar scanner and all my five aerals. It wavered about for a few days supported by the guy wires, and then collapsed on my cabin one morning about 3 a.m. I managed to persuade reluctant sailors to go out in the freezing fog and re-route the aerals using more oars from our lifeboats.

We thought we had found the stricken fishing boat when the fog cleared and revealed a large object in the distance. The cook was told to have soup ready for survivors, but he said "hat soup?" - we had been at sea so long we were running out of food. It was all a false

alarm anyhow because the object turned out to be an enormous packing crate.

Because it was a while since anyone had heard from us, I thought I would try to contact Saint Johns Radio in Newfoundland although the distance was over 500 miles and I only had low power with my home-made aerial system. The captain and I compiled a message explaining that we were still afloat and under power. We had so much to relate that this message was a hundred words long, which is very long compared to most I used to send on this work.

I managed to raise Saint Johns at about strength 3, and started on the message. Because the S.O.S. had reduced the number of frequencies available, many ships called on top of my weak signal. Saint Johns then had to stop me, tell the other ship to clear the frequency, or ask me to change frequency. We moved up and down the band about eight times, and all this took so long that two hours passed before I had sent all 100 words.

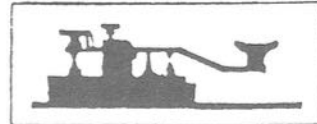
A day later we received an answer from England, via Saint Johns, and all it said was, "I am amazed".

We got there in one piece, but with no radar set and dense fog the harbour pilot decided that it would be simplest just to run the ship onto the beach.... after all it was a landing ship.

We had more adventures on the way home by plane, but that is another story.....



Spark-gap 21



Telegraphers like to apply the Bible verse from Job 38:35 to themselves. Look it up and see that the answer to the question posed was, until 1844, "No"; after that telegraphers could answer "Yes!".



Tales from the Bath Telegraph

by F.W. Thomas.

1



I spent four years with the US Naval Radio Service. I have kept up with the International code and could handle a circuit right now. I was handling traffic between the mainland and ships on the Great Lakes as early as 1920. When radio was just getting started in this country International Morse was not used, but American Morse was. While I was in the Navy a Chief Petty Officer told me that he was an op on the Great Lakes when International Morse was introduced.

He told me that the old-timers who knew both codes would chat with each other using one code for one word and the other code for the next, to confuse any of the new men who only knew International.

Thirty years later, in Clearwater, I got into conversation with a man and we somehow got onto communications. We discovered we were both former Naval radio ops and began comparing notes on equipment etc. Finally he asked me if I knew how the changeover from American Morse to International came about. I simply told him just what the Chief had told me thirty years before.

He agreed with everything I told him and then he said, "I was an operator on the Great Lakes when that took place". I knew that there were probably not more than five ops on the Lakes at that time and asked him if he knew Chief Telefson. His eyes opened wide. He pointed to his chest and said, "I'm Telefson". What a reunion we had then.

I believe I am probably the only living member of the "Air Mail Pioneers" who flew the mail here in the USA. In 1920 our radio station was on the air field of

the Air Mail Service and we took over their communications when the telegraph line connecting all the fields between Lakehurst, NJ, and Chicago, Ill, was taken out. I was 19 or 20 when I became associated with this service. Almost all the others were probably in their 30's or more, so I feel I am the only survivor.

I have a photo of an amateur station taken about 1918. It has an unusual vacuum tube with two filaments and terminals coming out either end as wires. If one filament should burn out the other filament was there waiting to be used. The station had honeycomb coils to pick up long wave stations.

I came home on leave from the Navy about 1920 and the owner of this station and I fixed up a little tx and crystal rx in his home (in the kitchen). He went to his radio station a couple of blocks away and we had quite a time talking back and forth in code. The boy's mother was deathly afraid of any type of electricity and kept clear of me while I was "risking my life" sending to her son from the kitchen.

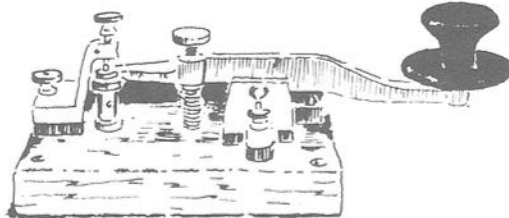
She had stacked all her cookware in the oven of her kitchen range and my back was towards that. Somehow I got tangled up in something and got a real shock. It was so sudden I tipped over backward in my chair and when I hit the floor the oven door opened and the cookware piled out on top of me. The mother heard the commotion and found me stretched out under everything and thought I had been killed. Funny thing about that - she never invited me back into her home!

Most amateurs probably do not know where the name "ham" came from. I try never to use the word for on landline circuits it means a poor operator, one who can't handle the circuit properly. Many times in my younger days I have been insulted by some smart bird on the other end of the wire calling me a ham and requesting they "put an operator" on. I think the professional operators gave the amateurs that name and it stuck.

Probably you are familiar with the way cable messages were transmitted and received before modern equipment was designed. It came on an endless paper tape with a pen making a continuous line, dots on one edge of



the tape and dashes on the other. I was looking over the shoulder of an operator copying from London to Chicago in 1925. The baseball season was in great shape at the time and I knew just how the World Series was going. Just then London gave us a flash, "WASHINGTON WON O.M. FOUR TO THREE". The operator tore out that part of the tape and gave it to me. I carried it around for several years.



F.W. Thomas.

The telegraph wires, stretched around the globe, are the harp strings on which the wild song of civilised man is played.

Arthur Fürst

38

transmitter powers are generally lower today than, say, 30 years ago, and many ships only have a whip aerial due to the lack of masts. Consequently ranges are not as great as may have been experienced in the past.

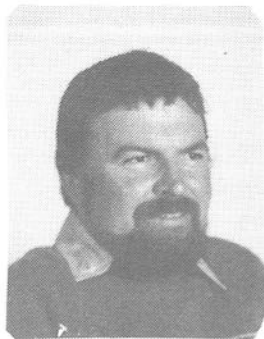
On 17th April, 1987, I was on watch on 500 kHz at Landsend Radio. At 0325 GMT the Urgency Signal 'XXX' was heard from callsign 5BLL, followed by the message '17/4/87 AT 0300GMT WATER COMING INSIDE ENGINE ROOM POSITION 36.47N 001.33W PSE ALL VESSELS KEEP LOOK OUT'.

This position was recognised as being in the western Mediterranean and a reply was expected from a coast station in the area. It is normal practice that if an acknowledgement of a distress or urgency message is not made by the station whose area of responsibility contains the position given, then any station hearing the message should take the appropriate alerting action.

However, in less than a minute 5BLL repeated the original message. During this second transmission charts and publications were checked to ascertain the closest station. While doing this, and with only a few seconds break, 5BLL repeated the message for a third time. This was beginning to get unusual, with the urgency being sensed by the writer as well as being indicated from the sender.

Still hearing no response from any station, I called the relevant Spanish station on 500 kHz asking whether the message from 5BLL had been received. 'No', was the reply, so the Spanish station was given the message on 500 kHz. A few minutes later, a telephone call was received from the rather disbelieving Spanish station querying the authenticity of the call. I could only repeat what I had heard.

Several times the Spanish station called 5BLL, without reply. The Spanish station then broadcast a repetition of the original urgency message from 5BLL as forwarded by Landsend Radio, preceded by the Auto-alarm Signal. The auto alarm on 500 kHz is a series of twelve 4-second dashes which actuates an alarm receiver to ring bells on the bridge, and in the radio officer's cabin, of any ship receiving the signal. This brought a response from several ships in the area who began to proceed towards



British Telecom still using Morse

John Chappell.



Ever since the sinking of the Titanic and until at least 1992, British Telecom - formerly GPO - coast radio stations have been, and will be, keeping watch on behalf of the Department of Transport on the International Marine Morse Distress Frequency of 500 kHz.

Until very recently all ships of 1600 tons gross and over have been required to carry equipment and a certificated officer capable of transmitting and receiving on 500 kHz. In preparation for the "Global Maritime Distress System", due to be operational in 1992, some ships in selected areas and/or with satellite communications are being granted exemption from carrying a Morse qualified officer, ie, the Radio Officer.

The watch is currently kept from eight stations in the UK, the writer being located at Landsend Radio/GLD. The day-time range on 500 kHz is generally stated to be about 300 miles, although at Landsend ships that put out an effective signal are frequently worked out to longitude 20.W or about 600 miles. Night-time range is considerably extended so that signals from ships are heard out to about 1000 or occasionally 1500 miles, and coast stations from Iceland to the eastern Mediterranean, and very occasionally the Caribbean, are readable.

Any 'old-timers' reading this must appreciate that

the position given.

While monitoring this large response, and bearing in mind the considerable cost of the shipping involved, the querying nature of the telephone call from Spain, and the apparent fact that no station closer to the position had heard the calls from 5BLL, I began to look for confirmation of my report.

Four other UK stations were checked, none of whom had heard 5BLL. Had it perhaps been a hoax call originating from somewhere near Land's End? Some solace was taken when Lloyd's Shipping Index indicated that 5BLL, which had recently changed its name from "Demetra Glory" to "Mimi-K", was indeed trading in the general area of the position given.

Luckily, all this speculation was soon put to an end when the Spanish station reported that a German warship had located and rescued all the crew of Mimi-K (later known to be 16) from the precise position given in the original message from 5BLL. This was of course a very rewarding experience for me.

As mentioned above, 1992 sees the end of 500 kHz as a Morse Distress Frequency world-wide. Readers of Morsum Magnificat, and particularly ex-ships' operators, along with the writer, will no doubt be sad at the demise of a mode that is wonderfully simple and effective. Nevertheless it requires a dedicated officer on board ship, which in the age of simplified radio-telephone and satellite equipment has been deemed to be unnecessary.

It can only be hoped that, in what must be the twilight of Morse at sea, devotees of MM enjoy hearing that Morse is still playing its part.

S.J. Chappell,
Radio Officer,
LANDSENDRADIO.

(John Chappell joined BT's Maritime Radio Division in 1970 after a period of four years at sea as a radio officer with Shell Tankers UK. He is also a licensed radio amateur, call-sign G3XRJ.)





Key Information

1



Key Nr 12, "Unknown English origin", in MM Nr 2 was designed in 1942 to be a standard item in the range of S.O.E. suitcase sets, and in the following years several thousand were made on contract by Multitone Ltd, London.

Normally fitted by screws to the lid of the Spares-box on the Type B 3MkII set, which then provided a large base, or fitted into clips on the Type A MkIII, the key's main merit was that it could be fitted into the cramped spares box.

It had no counterbalance mass behind the pivot, using only spring force adjusted by the screw in the bar. It was not popular with the users who knew what a good key should be, and many preferred the extra size and weight of Army/RAF keys. It speaks volumes for those heroes who used the key under stressful conditions in various countries around the world, that many thousands of groups of five-letter cipher were sent and successfully decoded.

A flex-pigtail was added soon after first production to reduce "key-bounce" caused by cathode current passing through the hinge-screw, a point that applies to some other keys.

John I. Brown, G3EUR.

(MM footnote: This key was produced by Multitone for the series of SOE W/T sets designed by John Brown, which included the Type A MkII and MkIII, and Type B MkII. These were used by SOE (1942-45) in various forms, the most well-known being fitted into suitcases.)

42

Flight Radio Officer



Maurice Sandys,
G3BGJ.



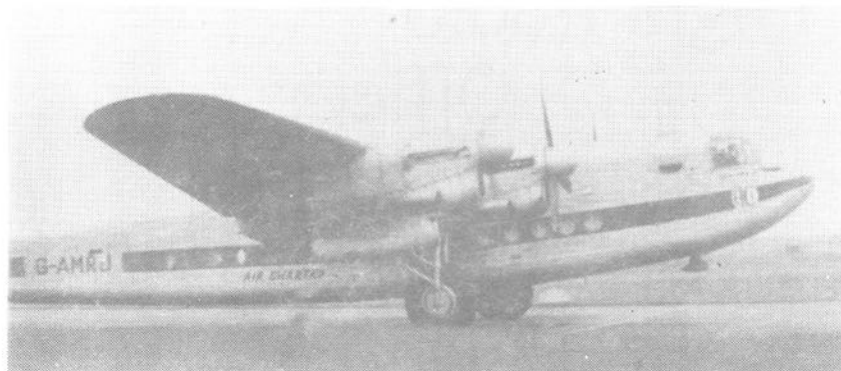
Part 1

I made my way into civil flying via wartime service in the RAF as a ground wireless operator, followed by a period in a similar capacity in the Ministry of Civil Aviation, finally being taken on in 1952 by Air Charter Ltd as a Flight Radio Officer.

Air Charter Ltd was Sir Freddie Laker's first real airline, his previous activities having been confined to the Berlin airlift. In Air Charter Ltd he had a company which was to range all over the world. At the time I joined they had one long nosed Tudor, one Bristol Freighter, one Dakota, and several Avro Yorks. But later, in 1954, they acquired Avro's entire stock of Avro Tudors.

In the Tudor they had a long range aeroplane that no other British charter company could match. Tudor operations were world-wide. Not until the appearance of the Britannia in 1957 was there a British aircraft capable of flying the San Francisco - Honolulu route, which the Tudor took in its stride. RAF contracts to take freight to Christmas Island came Air Charter Ltd's way because the RAF Hastings could not manage the long sea crossing.

I can still recall the feeling of superiority it gave us to taxi past a parked Hastings at the USAF Travis airfield in California before taking off for Honolulu, knowing that the Hastings could proceed no further!



"AVRO YORK"

I stayed with Air Charter Ltd until the final demise of the airborne radio Officer. Thus my experiences, mostly gained on Yorks and Tudors, cover the period 1952 to 1959. Those were the last years before advancing technology, particularly improvements in long distance voice communication, rendered the Radio Officer and his Morse key redundant. Of course, all this happened thirty years ago and in what follows I cannot guarantee that my memory is accurate on all points.

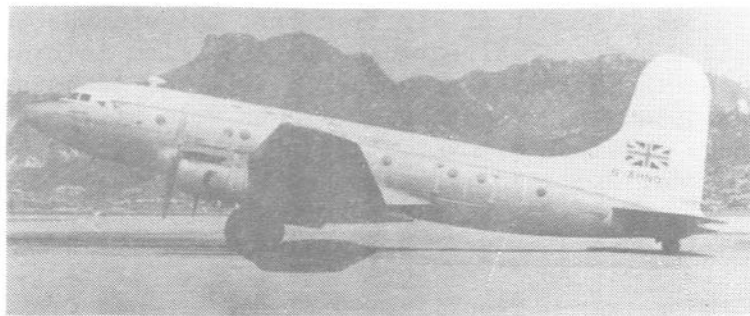
Charter flying

Charter companies lacked the massive ground organisation of the two Corporations, BOAC and BEA. Charter aircraft tended to be self-contained and self-sufficient units, able to traverse the world with the minimum of assistance from people on the ground, something like an airborne tramp steamer.

At the start of a voyage the engineer had to supervise the loading of the freight and make out his own load sheet to determine where the aircraft's centre of gravity was. If he got his sums wrong the result could

have been disastrous. Once airborne, the Radio Officer had to contact the destination to order a Met forecast for the next leg, or to book hotel accommodation. Once on the ground, the Captain had to settle all bills with the wad of travellers' cheques he carried with him. Unless we were on a regular run, there were no company agents to perform these routine services.

Unlike his white-gloved BOAC counterpart, our engineer had no company maintenance staff to hand a list of defects to on arrival. He had to stay behind to supervise the refuelling and do such maintenance as was required, while the rest of the crew piled into a mini-bus to speed them to their hotel and cool drinks. If an engine change was required (admittedly a rare occurrence) he could toil all day under a tropical sun at some alien airfield, recruiting such local assistance as was available. Once airborne, he had routine duties to perform.



"AVRO TUDOR"

Meter readings and fuel flow readings had to be logged every half hour, and a watch kept on fuel consumption.

If the engineer was the hardest worker on the ground, the navigator was the hardest worker in the air. On long desert crossings, usually undertaken at night because

such routes were totally devoid of navigational aids, the navigator would be up in his astrodome taking star shots with his sextant every half hour. Back at his desk, painstaking calculations were required to work out the aircraft's latitude and longitude. It must have been an anxious time for him, knowing he would be held responsible if we ended up miles off track.

On the Tudors, which still retained a spacious galley, we did a lot of our own catering. Many crew members, including some Captains, were excellent cooks and could serve up an appetising, freshly cooked, three course meal. One of the best was the chief pilot, Captain Jennings. To this day I retain a mental image of him, after climbing out of Darwin at 4 o'clock in the morning, going aft to the galley to prepare a breakfast of bacon and egg for us all. How unlike BOAC, where the Captain was expected to stay at a different hotel to his crew!

Why a Radio Officer?

The rapid growth of air transport between the wars created a need for air-ground communication in order to regulate the movement of aircraft. In the twenties the transmission and reception of speech were still in their infancy. Wireless communication by Morse code, on the other hand, had been in existence since the start of the century. The simplest way, therefore, to provide air-ground communications was to instal a specialist operator with his radio gear and Morse key in the aircraft. Furthermore, there was a plentiful supply of trained operators to be enticed away from the Merchant Navy and other services.

Another factor favouring the introduction of Radio Officers was that Europe, unlike the USA, had a variety of languages. When primitive speech equipment became available, it was still simpler on European journeys to communicate in the International Morse code by means of Q-signals, which were already in widespread use by shipping and other services. Many new Q-codes were introduced for aeronautical use and survive to this day, for instance, QNH for altimeter setting. In fact, an entire flight could be conducted on Q-codes, from taxiing out for take off to parking on arrival.

In the USA, developments followed a different course. With no language barrier, American domestic services introduced pilot operated voice communication from an early stage, although the airlines did employ radio operators on the long-range Pacific flying boats.

Aircraft equipment

The Radio Officer was concerned primarily with long distance communication, but could also provide navigational assistance. His main equipment was a transmitter-receiver covering the MF and HF bands (200-500 kHz and 2-16 MHz). In 1952 most British charter aircraft were equipped with the ex-RAF T1154/R1155 combination or the American BC375 transmitter and BC348 receiver. The aerial was a fixed wire running from a short mast to the aircraft's tail, or a manually winched trailing aerial of about 200 feet. The Tudors had a power-operated trailing aerial, a luxury much appreciated by the Radio Officers.

Reception on the R1155 receiver could be switched to a direction-finding (DF) loop mounted in a streamlined casing on top of the fuselage. The loop was rotated manually from the Radio Officer's position. A Bendix radio compass, an Instrument Landing System (ILS) and a multi-channel VHF transmitter-receiver completed the installation. Two other important items should be mentioned, an Aldis lamp and a hand cranked emergency transmitter which was stowed just below the escape hatch. These facilities were typical of Air Charter Ltd's Yorks and Tudors.

Aircraft were expected to find their way all over the world on a few basic instruments. The tools of the navigator's profession were few in number - the magnetic compass, the gyro compass, the radio compass, the drift sight, and the bubble sextant. In addition, bearings and fixes could be obtained from suitably equipped ground stations at medium range using VHF voice, or on the MF and HF bands by the Radio Officer. Bearings on radio beacons could also be taken on the DF loop, but in my experience the navigator seldom called for one. However, I liked playing around with the DF loop and would often supply him with a few bearings whether he wanted them or not.

A Consul chain still operated, with stations sited at Stavanger, Lushmills, and Plonéis, giving coverage over Europe and the Atlantic. It was rather slow for aeronautical use as it entailed tuning in each station in turn and counting the number of dots between two call-signs, then referring to a grid of bearing lines on a chart to fix the aircraft's position. In Europe, radio ranges which laid down the path along the main routes were still in operation. The advantage of these two facilities was that only a HF radio receiver was required.

Thus equipped, with a mere handful of radio and navigational aids, we would gaily set forth for the far corners of the world.

Communications

By 1952, the network of airways covering Europe was nearing completion. VHF voice coverage was more or less continuous, so the Radio Officer flying east did not begin to play an important part until the Mediterranean coast of Europe was left behind. His main function then was to provide en route communication with the control station of each Flight Information Region (FIR) the aircraft passed through. At half hourly intervals the navigator would prepare a position report giving the aircraft's latitude and longitude, its height, track and ground speed, and the ETA at the next reporting point. Within less than a minute the Radio Officer would have transmitted this information on his Morse key. Sometimes the report would be made out on a RAF POMAR form, which contained additional meteorological observations. POMAR's were in the form of 5-figure groups.

More than once I have read statements in aviation magazines to the effect that "my radio operator was out of touch all the way." Indeed, it was because of reading such assertions that I commenced this narrative. In my experience it was unusual to be out of touch with the control station. A range of frequencies was available to suit the time of day and the distance, and the ground operators kept continuous watch. Before joining Air Charter Ltd I had worked at the Air Traffic Control Centre at Uxbridge where, in 1950, the bulk of communication was still in Morse code, and it was a rare exception to have no contact with an aircraft entering the FIR.

Normal practice was to contact the destination airfield as soon as possible after take off to notify them of our ETA and to order a Met forecast for the next leg. It put the Captain in a good mood if there was a forecast waiting for him when he called at the Met office.

Booking hotel accommodation was considered by the crew to be an important category of message. On the run to Singapore with RAF freight the practice was to call the RAF radio station at Changi while still two days away on the Bahrein - Sri Lanka leg, asking for accommodation and beer and sandwiches to be waiting for us at the Ocean Park Hotel. What a welcome sight the well laid out tray was, for we normally arrived in the small hours of the morning when the catering services were closed down.

The latest innovation on the British Airways transatlantic service is a radio telephone. Passengers can phone home from mid-Atlantic. One could not do that in the days I write about, but one could do the next best thing - send a telegram! The GPO radio station at Portishead, which served world wide shipping, was also open to aircraft. It was common practice for our Radio Officers, on the last leg of a long journey, to send a telegram to Head Office giving the ETA at the ultimate destination. Within a short time it would be on the operations manager's desk in Wigmore Street.

I was never called upon to send a passenger telegram, but it would have been quite feasible for a passenger over the Indian Ocean, say, to have sent a telegram anywhere in the UK. Within half an hour or so, a boy on a red bicycle would have been knocking at the door. Since the telegram service has been discontinued there is no longer a quick method of getting in touch with someone who does not possess a telephone. Progress can be a strange thing at times.

Company messages could also be sent at long range to the Ministry of Civil Aviation station at Birdlip, from whence they would go by teleprinter to Stansted Airport, our home base. I imagine the whole concept of aircraft communicating direct with the UK from the other side of

the world disappeared with the introduction of pilot operated HF voice communications. Reading weak voice signals through interference is well nigh impossible, although such conditions present little difficulty to the experienced Morse operator. Paradoxically, the old methods may have been quicker. Messages channelled through the control station of the moment and relying on ground organisations for onward transmission to the UK could well take longer to arrive than did ours of thirty years ago.

Much of our flying was over long ocean routes. The Tudors regularly flew from Bahrain to Perth via Sri Lanka and the Cocos Islands, on their way from the UK to Adelaide. To relieve the tedium, the Radio Officer could exchange a few pleasantries on his Morse key with a ship's radio Officer somewhere below in the Indian Ocean. The marine operator did not have to speak English. The international Q-code and other abbreviations used by radio operators were quite sufficient for the exchange.

There was a legal requirement in those days that aircraft flying over the sea be able to work on the international maritime distress frequency of 500 kHz. All ships kept watch on this frequency, or had an automatic alarm device that would respond to a sequence of slowly sent dashes. It could have been a life saver in an emergency. Aircraft today do not have this capability - yet another example of the difference between then and now. However, with the introduction of geostationary satellites giving VHF coverage over an entire hemisphere, they may soon be able to do all the things we could!



Decorative flourish



Just rambling



Thanks to everyone who wrote or phoned to tell me that the "unknown boatkey" (Nr 33) in the last issue is in fact the standard RAF key used in bombers, etc, from about 1937. Reader Tony Bernascone thinks the J-31 (Nr 32) was used in clandestine operations concealed in the sleeve of the operator. Can anyone confirm this please?

British Telecom International's Niton, Humber, and Stonehaven Radios ceased their W/T service on 31st October. The 500 kHz distress watch continues at five other stations. We hope to have a detailed article about the present use of Morse by BTI in the not too distant future.

1987 was the 150th anniversary of the Cooke & Wheatstone non-Morse needle telegraph, the single-needle version of which eventually became a Morse instrument, used by British railways until the 1960s. We will be looking at the work of these great telegraph pioneers in future issues.

Have you heard of the FISTS CW CLUB which sets out to welcome newcomers to the CW bands? It is open to all, but newcomers and experienced operators willing to actively encourage them are especially welcome. Contact Geo Longden, G3ZQS, 119 Cemetery Rd, Darwen, Lancs, BB32LZ. Non-Gs are welcome. Send s.a.e. or IRC.

If you own a vintage set, try joining in the Norsk Radiohistorisk Forening (NRHF) "antique" net around 3.508 MHz on Saturdays at 0730 UTC. They call CQ ANT. Their second "clandestine" field-day will be on 28th May, 1988, when they will use WW2 spy-sets, etc, hoping to work into the UK just as the original operators did during the war. Full details in the Spring issue of IM.

Finally, why not join in the QRP Winter Sports, December 26 to Jan 1? Plenty of stations from many countries, including transatlantic, on all bands. Just reduce power to 5w or less and give them a call. If you're not into low-power working already, you may be surprised! 73, 30, Tony.

❧ An Important Announcement ❧

I very much regret to announce that owing to the serious illness of Rinus Hellemons, PAØBFW, the Dutch edition of *Morsum Magnificat* will no longer be published after the Winter 1987 issue.

The English edition will, however, continue publication. Please note that all correspondence and subscriptions from outside Britain previously sent to Holland should now be sent to me in London.

Under the new arrangements Dick, PA3ALM, will no longer be able to work on the production side of the magazine although he has promised to help during the change-over period. I would therefore appreciate offers of assistance from readers in order to keep MM going. Specifically, can anyone provide occasional help with photographic work (mainly B & W enlargements or reductions from original photos)? Can anyone help with cartoons/illustrations etc? And can anyone translate Dutch into English?

I am also having to look for a printer in the UK as it will no longer be practicable to print MM in Holland. Can anyone recommend a printer who charges reasonable prices? First enquiries in London have resulted in cost quotations which could rapidly drive MM into bankruptcy!

I would really like to find someone to share the work of producing MM with me, preferably undertaking the production side of things, but I'm open to suggestions. If anyone is interested, please contact me.

MM owes much of its popular character and appeal to the work of Rinus and Dick which will be greatly missed in future issues. It is my hope, however, that MM will continue to go from strength to strength with the support of its faithful readers, exactly as it has done since we launched it with such optimism in the Autumn of 1986.

Tony Smith, G4FAI.





CQ

XU2UU



Ray Hunting, G3OC.

In June 1940 I was in France, serving with the British Military Mission to the French High Command. After the Dunkirk evacuation, the Germans drove on towards Paris, and the French GHQ moved some miles south, to the town of Briare. At a village school nearby I had a No.9 set with a wire antenna between two trees, and began sending CW traffic to Whitehall via a station at Bulford Camp. The Head of the Mission was Major-General Sir Richard Howard-Vyse, who laboured on long despatches with a code-book, and presented bundles of Army message forms with about 900 groups for transmission.

German Intelligence soon had a fix on us and noted our alternative frequencies. Using a powerful transmitter with a warbling signal they began to obliterate our transmissions. By moving from one pre-arranged frequency to another we had a short respite to send a few groups before the jamming resumed. It took hours to pass a single despatch and we became seriously in arrears with the traffic. I explained the problem to the General who replied calmly, "You are Signals - you'll find a way to get through".

At the end of one exhausting session the Bulford operator closed with "73 OM ES GL". I sent "HR G3OC", and he came back with "HR XU2--". He was a Royal Signals ham who had been operating in China, probably from Shanghai. After that we abandoned the normal Army procedure and worked as hams. Using our official call-signs only at the beginning and closing of each session, we stepped up the speed and worked to BK, QRX, QSY etc. On hearing the Germans tuning to our frequency we simply side-stepped up

or down a few Kc's and after a quick BK, went to work pounding out the groups. We cleared all traffic in record time and never lost a group. When France collapsed we closed the stations, feeling rather chuffed that we had outwitted the German operators.

After a lively escape from France I returned home to face a Court of Inquiry. I think the Charge was "Whilst on Active Service, employing an unauthorised signal procedure in a Theatre of Operations". After an examination of the circumstances the matter was dropped.

I have often wondered who was on the key at Bulford Camp and how he fared once the operation had ended. At this distance in time I seem to recall that his call-sign was ex-XU2UU. I heard it only once. If anyone could help me to identify this brother in adversity I would be grateful. Our misuse of official equipment took place in June 1940.

(from MERCURY, journal of the Royal Signals ARS, July '84)

FOLLOW-UP

Ray Hunting tells us that he had some follow-up to this article. One amateur wrote to him suggesting that the name of the operator was Frank Lawson.

Another, "Jim Brooks, now G13ALT, of Belfast, wrote to me informing me that he had witnessed this incident. He was then a Royal Signals Electrician-Signalman at the War Office Wireless Station near Tidworth. The duty operator was a former Marconi telegraphist, and when the Germans began to jam the frequency he threw his headphones on the desk in despair. It is thought that the Sergeant in charge of the station, "Blanco" White (who was both a regular Army operator and a Ham) took over, and began to receive my long despatches.

This incident disturbed Jim Brooks. He told me that many times during the passing years he wondered what happened to the "poor chap" who was somewhere in France struggling to get his messages through to Whitehall".

Has any reader a pre-war International Callbook which could be checked to see if either of these names, or the call, is to be found there? If XU2UU is not listed then

one of the other call-signs may be linked to one of these names.

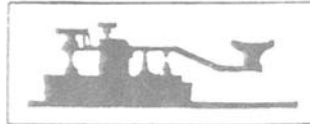
If you can help, please write to Rev. R. Hunting G3OC,
25 Station Road, Thurlby, Lincs, PE10 OJA.



Spark-gap 22

SAVED BY BLINKER

by Loren A. Disper.



I HAD A interesting and vital blinker experience while aboard the S.S. Admiral Y.S. Williams/KJZT. It occurred while we bound for Singapore shortly before America's entry into WW II.

The whistle on the speaking tube sounded in the middle of the night, and when I answered it, the Captain told me to get up on the bridge. When I arrived on the bridge I saw the vague outline of a ship off the starboard side (Probably a British naval vessel) that was signalling to us with her blinker light.

I was no ace at reading lights, but I managed to receive a message that said:

"You are north of the swept channel".

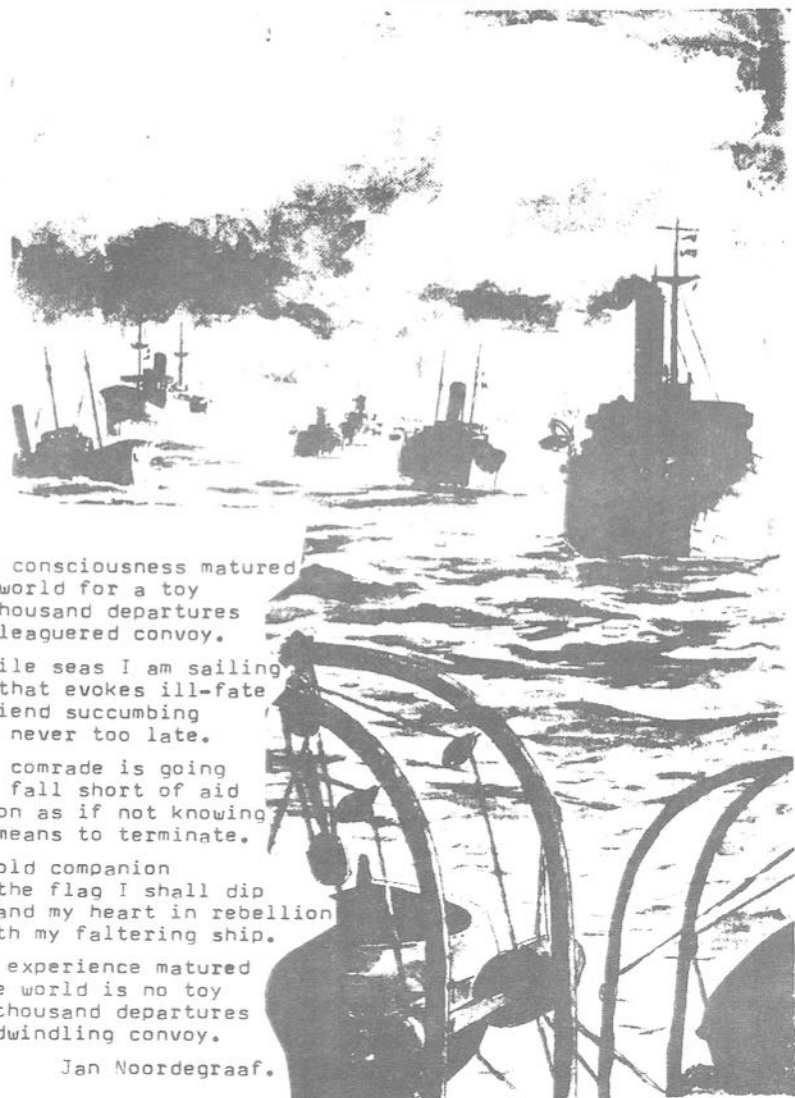
In other words, we were headed directly into a mine field.

I then asked if Raffles light was lit.
It was.

The captain ordered a course change, and we made our way safely into Singapore.



Sparks Journal



OUR CONVOY

Once when my consciousness matured
I chose the world for a toy
but after a thousand departures
part of a beleaguered convoy.

Through hostile seas I am sailing
on a course that evokes ill-fate
and many a fiend succumbing
for death is never too late.

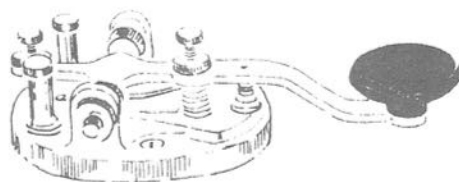
When another comrade is going
my poor arms fall short of aid
and we sail on as if not knowing
for to stop means to terminate.

Good bye my old companion
how useless the flag I shall dip
too shocked and my heart in rebellion
I proceed with my faltering ship.

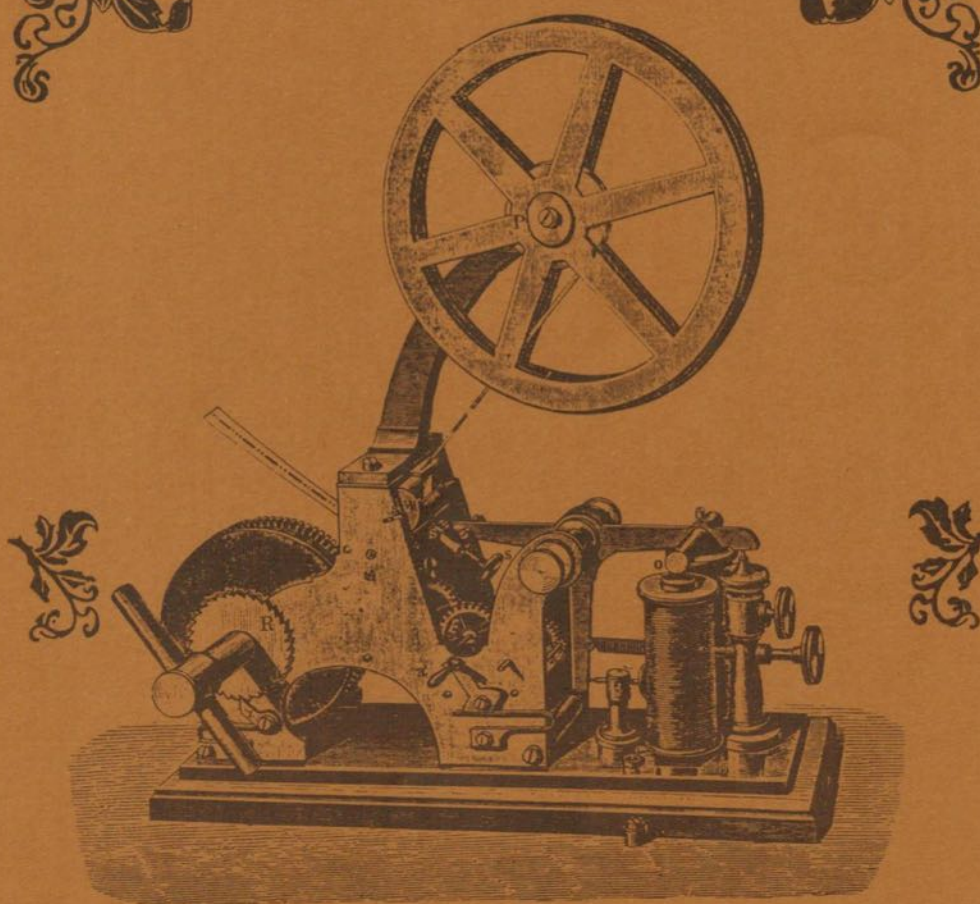
For since my experience matured
I learned the world is no toy
and after a thousand departures
belong to a dwindling convoy.

Jan Noordegraaf.

Tekening van J. H. Kerkhof

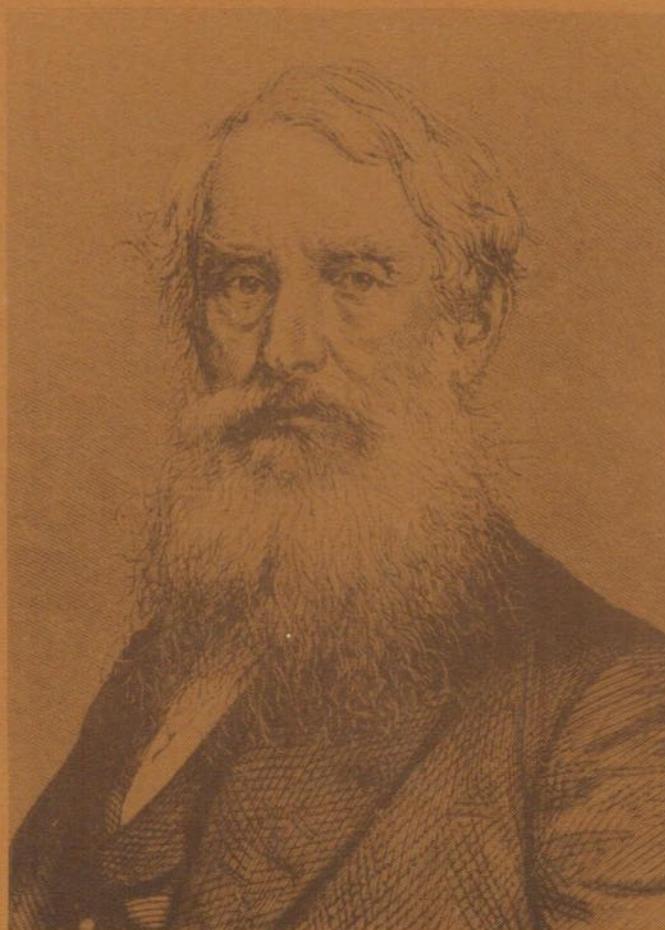


56



Spring-driven Reliefwriter





Samuel
Finley
Dwight
Horse